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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/520,930

01/17/2006

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EXAMINER

BELL, BRUCE F

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

03/18/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/520,930	<b>Applicant(s)</b> WESNER ET AL.	
	<b>Examiner</b> Bruce F. Bell	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4,10,12,13,16,22,33,35 and 36 is/are rejected.
- 7) ☒ Claim(s) 2,3,5-9,11,14,15,17-21,23-32 and 34 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/7/05; 1/17/06</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities:

The reference to the claims through out the specification, are requested to be removed, since claims are subject to change during prosecution of the application.

Appropriate correction is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading.

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (d) BRIEF SUMMARY OF THE INVENTION.
- (e) BRIEF DESCRIPTION OF THE DRAWING(S).
- (f) DETAILED DESCRIPTION OF THE INVENTION.
- (g) CLAIM OR CLAIMS (commencing on a separate sheet).
- (h) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

Applicants are requested to place the appropriate title headings above prior to each section of their instant specification.

### ***Claim Rejections - 35 USC § 101***

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 22 and 33 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. "USE" claims are a non-statutory class of invention.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 12 and 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 12 and 36 are vague and indefinite with respect to what is meant by the grain size of the embedded diamond particles substantially coincides. It is unclear as to what these particles substantially coincide with, from the instant claims as set forth. Does this mean that the particles size are close to the same size for all particles or is some other concept trying to be conveyed here?

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 4, 10, 12, 13, 16, 35, 36 rejected under 35 U.S.C. 102(e) as being anticipated by Shibata et al (2005/0186345).

Shibata et al disclose a conductive diamond electrode having an electrode substrate of a material selected from a valve metal and an alloy based on the valve metal and having at least a surface of the metal or alloy having been subjected to plasticization processing or heat treatment in a vacuum or inert atmosphere and a conductive diamond film formed on the plasticization processed surface of the electrode substrate. See abstract. The electrode substrate is one of a valve metal such as that of titanium, zirconium, niobium or tantalum or an alloy based on the metal valve. See paragraphs 0035 and 0036. Plasticization processing is performed on the substrate to form an unevenness to enable improved contact of the conductive diamond material to the surface of the substrate. See paragraphs 0037-0039. The diamond coating is performed by CVD method which enables seeding of the nano-diamond particles having high adhesion to the substrate. See paragraph 0047. To impart good conductivity to diamond, boron or phosphorus is added. See paragraph 0052. The plasticization creates nano-pits into which the nano-diamonds can be seeded. See paragraphs 0062 and 0064. The nano-diamond particles having an average particle diameter of 5 nm that are introduced into 100 ml of ethanol and the resulting mixture is mixed to disperse the particles into the ethanol, so that when the substrate is immersed into the solution, and the CVD process is started, the nano-diamond particles can be seeded into the nano-pits of the substrate surface. See the reference example and example 1.

Shibata et al anticipates the applicants instant invention as shown by way of the disclosure to Shibata et al above with respect to the instant claims as presented. The examiner is construing the embedded layer to be that of the plasticization layer where nano-pits are formed in the substrate to enable the nano-diamond particles of a size similar to that of the nano-pits to enable seeding of these nano-diamond particles to the substrate. Claims 12 and 36 directed to the embedded diamond particles substantially coincides appears to be met since the nano-diamond particles are of substantially the same sizes and they do coincide with that of the nano-pits to which these particles are to be seeded. With respect to claim 16, it would appear that since a CVD process is used to deposit the nano-diamond particles into the substrates nano-pits, that the particles would be accelerated in fluids to be deposited into the substrate surface. Therefore, the prior art of Shibata et al anticipates the applicants instant invention. Applicant's will argue that the Shibata et al patent is not proper for a 35 USC 102(e) rejection because applicants have priority back to July 8, 2002. The examiner would like to point out that in order to overcome the above rejection, an English Translation of the Foreign Priority Document must be received, so that it can be ascertained whether or not that the information relied upon in the instant claims, may be found in these documents, therefore, the rejection is proper until such time as the English Translation has been received.

***Allowable Subject Matter***

7. Claims 2, 3, 5-9, 11, 14, 15, 17-21, 23-32, 34 are allowable over the prior art.

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8. Claims 2, 3, 5-9, 11, 14, 15, 17-21, 23-32, 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach and/or suggest the specific limitations with respect to the claims listed above in the objection to the claims that are based on a rejected base claim.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruce F. Bell whose telephone number is 571-272-1296. The examiner can normally be reached on Monday-Friday 6:30 AM - 3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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BFB  
March 11, 2008

/Bruce F. Bell/  
Primary Examiner, Art Unit 1795